AMENDMENT

This listing of claims replaces all prior versions, and listings, of claims for this application.

1. (Currently Amended) A process for obtaining a bulk gallium-containing ~~nitridemonocrystal~~ ~~from supercritical ammonia-containing solution in the presence of a mineralizer, wherein~~ nitride monocrystal, comprising:

contacting ammonia with a mineralizer comprising a Group I azide in a pressurized reaction vessel to form ~~- using ammonia as solvent and Group I element azides and optionally Group II element azides as mineralizer,~~ a supercritical ammonia-containing solution ~~including~~ comprising an ion of a Group I element; ~~and optionally Group II element ions is first obtained to dissolve next~~

dissolving a gallium-containing feedstock at a dissolution temperature ~~and/or dissolution~~ and pressure condition under which the gallium feedstock dissolves in the supercritical ammonia-containing solution; and ~~then~~

crystallizing a gallium-containing nitride ~~is crystallized from the supercritical solution~~ on ~~the~~ a surface of ~~at least one~~ a seed at [[the]] a crystallization temperature ~~and/or crystallization~~ and pressure condition,

wherein the crystallization temperature ~~and/or crystallization~~ and pressure ~~is selected according to the~~ condition is determined using a temperature coefficient of solubility and a pressure coefficient of solubility of the gallium-containing nitride to be crystallized.

2. (Currently Amended) A process for obtaining a bulk gallium-containing nitride monocrystal, comprising: ~~from supercritical ammonia-containing solution in the presence of Group I and optionally Group II element-containing mineralizer, wherein when gallium-containing nitride has a negative temperature coefficient of solubility and a positive pressure coefficient of solubility in supercritical ammonia-containing solution, in the presence of Group I and optionally Group II element-containing mineralizer, in a pressurized reaction vessel - using Group I element azides and optionally Group II element azides as mineralizers -~~

contacting ammonia with a mineralizer comprising a Group I azide in a pressurized reaction vessel at a condition under which a gallium-containing nitride has a negative temperature coefficient of solubility and a positive pressure coefficient of solubility, forming a supercritical ammonia-containing solution ~~including~~ comprising an ion of a Group I element; ~~and optionally Group II element ions is first obtained to dissolve next~~

dissolving a gallium-containing feedstock at a dissolution temperature ~~and/or dissolution~~ and pressure~~; and then~~ condition under which the gallium-containing feedstock dissolves in the supercritical ammonia-containing solution; ~~gallium-containing nitride is crystallized from the supercritical solution on the surface of at least one seed by means of bringing the temperature to crystallization temperature and/or the pressure to crystallization pressure,~~

obtaining a super-saturation of the supercritical ammonia-containing solution at a crystallization temperature and pressure condition having a temperature higher than that of the dissolution temperature and pressure condition or a pressure lower than that of the dissolution temperature and pressure condition; and ~~the crystallization temperature being higher than the dissolution temperature and/or the crystallization pressure being lower than the dissolution pressure at least at the crystallization zone of the pressurized reaction vessel, where the seed is placed – so that super-saturation of the supercritical solution with respect to the seed is achieved – and then~~

crystallizing a gallium-containing nitride on a surface of a seed by maintaining the super-saturation of the supercritical ammonia-containing solution ~~is maintained~~ at the level at which spontaneous crystallization of [[the]] nitride ~~may be neglected, while crystallization of the gallium-containing nitride is carried out on the seed~~ is negligible.

3. (Currently Amended) ~~Process~~ The process according to claim 1, wherein [[the]] gaseous nitrogen, produced during [[the]] decomposition of the azide, is at least partially evacuated ~~from the system~~ before the ~~re-crystallization~~ crystallizing step is started.

4. (Currently Amended) ~~Process~~ The process according to claim 1, wherein ~~as a~~ the crystallized gallium-containing nitride ~~-the nitride having~~ has a general formula $Al_xGa_{1-x}N$, where $0 \leq x < 1$ ~~is crystallized~~.

5. (Currently Amended) ~~Process~~ The process according to claim 1, wherein the ~~azide moneralizers are~~ mineralizer is selected from the group consisting of LiN_3, NaN_3, KN_3, CsN_3 and mixtures thereof.

6. (Currently Amended) ~~Process~~ The process according to claim 5, wherein the mineralizer [[used]] contains at least one compound selected from the group consisting of LiN_3, NaN_3, KN_3 and CsN_3.

7. (Currently Amended) ~~Process~~ The process according to ~~the~~ claim 6, wherein the mineralizer contains NaN_3 and KN_3 ~~mixed in arbitrary molar ratio~~.

8. (Currently Amended) ~~Process~~ The process according to ~~the~~ claim 6, wherein the mineralizer contains NaN_3 and LiN_3 ~~mixed in arbitrary molar ratio~~.

9. (Currently Amended) ~~Process~~ The process according to ~~the~~ claim 6, wherein the mineralizer contains KN_3 and LiN_3 ~~mixed in arbitrary molar ratio~~.

10. (Currently Amended) ~~Process~~ The process according to ~~the~~ claim 6, wherein the mineralizer further contains [[also]] Group I element-containing compound other than azide. ~~and optionally Group II element- containing compound(s) other than azides.~~

11. (Currently Amended) ~~Process~~ The process according to claim 1, wherein the Group I ~~element azides are introduced into the system~~ azide is added in a molar ratio of ~~azides~~ azide to ammonia ranging from 1:200 to 1:2.

12. (Currently Amended) ~~Process~~ The process according to claim 1, wherein [[a]] the seed ~~crystal with at least~~ comprises a crystalline layer of Group XIII ~~element~~ element-containing nitride ~~, preferably gallium-containing nitride,~~ having a dislocation density less than $10^7 / cm^2$ ~~is used~~.

13. (Currently Amended) ~~Process~~ The process according to claim 1, wherein the seed comprises a structure having a number of surfaces spaced ~~adequately far~~ apart from each other,

arranged on a primary substrate and susceptible to [[the]] a lateral overgrowth of a crystalline ~~nitrides is used as a seed~~ nitride.

14. (Currently Amended) ~~Process~~ The process according to claim 1, wherein a monocrystalline nitride layer that is obtained ~~having~~ has the same or better quality as [[it]] the gallium-containing nitride monocrystal gets thicker.

15. (Currently Amended) ~~Process~~ The process according to claim 13, wherein the seed contains the primary substrate made of a crystalline nitride of Group XIII ~~elements~~ element.

16. (Currently Amended) ~~Process~~ The process according to claim 15, wherein the seed contains the primary substrate made of gallium nitride [[– GaN]].

17. (Currently Amended) ~~Process~~ The process according to claim 15, wherein the seed contains the primary substrate made of a crystalline material such as sapphire, spinel, ZnO, SiC or Si, and wherein the primary substrate made of [[the]] a material ~~reacting with~~ reactive to a supercritical ammonia-containing solution is covered with a protective layer ~~, preferably made of a nitride containing Group XIII elements or metallic Ag,~~ prior to formation of a monocrystalline nitride layer.

18. (Currently Amended) ~~Process~~ The process according to claim 1, wherein the bulk nitride monocrystal obtained consists essentially of gallium nitride [[– GaN]].

19. (Currently Amended) ~~Process~~ The process according to claim 1, wherein the bulk nitride monocrystal obtained contains any of the following elements: Ni, Cr, Co, Ti, Fe, Al, Ag, Mo, W, Si and Mn.

20. (Currently Amended) ~~Process~~ The process according to claim 1, wherein ~~some surfaces~~ a surface of the seed ~~are~~ is covered with a mask layer prior to formation of a monocrystalline nitride layer.

21-30. (Canceled)

31. (Currently Amended) A method for ~~epitaxy~~ creating an epitaxial layer on a nitride monocrystal, comprising:

obtaining a bulk nitride monocrystal by a process according to claim 1; and ~~21 as substrate for epitaxy and creating epitaxy~~

growing an epitaxial layer on the nitride monocrystal.

32. (Currently Amended) The method of claim 31, wherein the bulk nitride monocrystal has at least one epitaxial layer of the same or different Group XIII ~~element~~ element-containing nitride, deposited by a MOCVD, HVPE or MBE method as a template for opto-electronic devices.

33. (Original) The method of claim 32, wherein the epitaxial layer is doped with one or more dopants.

34. (Currently Amended) A bulk nitride monocrystal obtained by a process according to claim 1, having a reduced content of impurities in form of oxygen, as compared to a nitride monocrystal obtained from a supercritical ~~solutions~~ solution having a different qualitative composition than that used in claim 1.

35. (Canceled)

36. (New) A process according to claim 1, wherein the mineralizer further comprises a Group II azide and the supercritical ammonia-containing solution further comprises an ion of a Group II element.

37. (New) A process according to claim 2, wherein the mineralizer further comprises a Group II azide and the supercritical ammonia-containing solution further comprises an ion of a Group II element.

38. (New) A process according to claim 10, wherein the mineralizer further comprises a Group II element-containing compound other than an azide.

39. (New) A process according to claim 17, wherein the protective layer comprises a Group XIII element-containing nitride or a metallic Ag.